SEQUENCE LISTING

General Information

APPLICANT: CSIR

TITLE OF INVESTIGATION: A Promoter For High-Throughput Screening For

Inhibitors Against Mycobacteria Under Low Carbon Conditions

NUMBER OF SEQUENCES: 2

CORRESPONDENCE ADDRESS: Indian Institute of Science, Banglore, India

INFORMATION FOR SEQ ID No:1

1 SEQUENCE CHARACTERISTICS:

LENGTH: 1.5 kb.

TYPE: DNA

25

TACATGGGCTGGTGACTACGTGTTGAACGTGATCGCGACGGGGCTCTCCTTAAAGGCACGGGGAAGCG

 $\tt CCGCCGGCAGCGTTGGGTCGACGACGGCGGGTATTGGCGCTCGGTGAGTCCCGCCGGAGCTCAGCCAT$

ATCTGTGGCCGACGTGGTTGCGTCGCTGACCCGGGATGTGGCCGACTTTCCGGTTCCCGGCGTCGAGTTC

AAGGACCTCACCCGCTATTCGCCGACCGAAGAGGATTGGCCGCGGTAACCGAAGCGCTGGCCGATCGG

GCGTCCGGAGCTGACCTGGTGGCCGGCGTCGACGCCCGCGGGTTTCTGGTGGCAGCCGCGGTCGCCACCC

ACTACAGGGCGTACGGCGCCGCCACTCTGGAGATTCTCGCTGAGGGCATCGAGGTTGCGGGCCGCCGTGT

CGTGATCATTGACGACGTGTTAGCAACCGGCGCACCATCGGCGCGACGCCTGCTTGAGCGCGG

ACCGCTGCCGGTGCACAGCCTGAGCCGCCTGTGAGGGGATATCCTCTAGGTCGGAGGTGACGAACGTGGC

CGAGGACCAGCTCACGGCGCAAGCGGTTGCACCGCCCACGGAGGCTTCTGCGGCTCTCGAGCCCGCTCTC

GAGACGCCGAGTCGCCGGTCGAGACTCTTAAGACCAGCATCAGCGCGTCGCGTCGGGTGCGGGCCCGA

TTGGCCGGCGGATGACCGCCCAGCGCACCACCACCATCCGTGCTCGAGCCGTTGGTGGCGGTGCAC

CGGGAGATCTATCCCAAGGCCGACCTGTCGATCTTGCAGCGAGCCTACGAGGTCGCTGACCAAAGGCAT

GC

ORGANISM: M.tuberculosis

IMMEDIATE: Natural

NAME / KEY: Natural oligonucleotide

SEQUENCE ID # 1

INFORMATION FOR SEQ ID No:2

1 SEQUENCE CHARACTERISTICS:

LENGTH: 200 bp

TYPE: DNA

26

Sakz____

ORGANISM: Natural sequence

IMMEDIATE: Natural

NAME / KEY : Natural oligonucleotide

SEQUENCE ID # 2

REFERENCES

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- Bannantine, J.P., Barletta, R.G., Thoen, C.O., and Andrews, R.E. Jr. 1997.
 Identification of mycobacterium paratuberculosis gene expression signals.
 Microbiology 143, 921-928.
- 2. Burgess,R.,R., and Jendrisak,J.J., 1975. A procedure for the Rapid, Large-scale purification of *Escherichia coli* DNA-Dependent RNA polymerase involving polymin P preciptation and DNA-cellulose Chromatography. Biochemistry 14, 4634-4638.
- 3. Chatterji ,D., Ohja A.K.,2001 Revisiting the stringent response, ppGpp and starvation signaling.Current opinion in Microbiology 4,160-165.
- Cole, S.T., Eiglmeier, K., Parkhill, J., James, K.D., Thomson, N.R., Wheeler, P.R., Honore, N., Garnier, T., Churcher, C., Harris, D., Mungall, K., Basham, D., Brown, D., Chillingworth, T., Connor, R., Davies, R.M., Devlin, K., Duthoy, S., Feltwell, T., Fraser, A., Hamlin N., Holroyd, S., Hornsby, T., Jagels, K., Lacroix, C., Maclean, J., Moule, S., Murphy, L., Oliver, K., Quail, M.A., Rajandream, M.A., Rutherford, K.M., Rutter, S., Seeger, K., Simon, S., Simmonds, M., Skelton, J., Squares, R., Squares, S., Stevens, K., Taylor, K., Whitehead, S., Woodward, R., Barrell, B.G., 2001. Massive gene decay in the leprosy bacillus. *Nature*, 409, 1007-1011.
- 5. Das Gupta, S.K., Bashyam, M.D., Tyagi, A.K.,1993. Cloning and assessment of mycobacterial promoters by using a plasmid shuttle vector. J Bacteriol. 175, 5186-192.
- 6. Dastur, A., and Varshney, U., 2001. Promoter analysis in mycobacteria using *xylE* reporterassays and its implication in high throughput screening. Tuberculosis. 81, 267-269

- 7. Fowler, A.V., and Zabin,I.., 1983. Purification, structure and properties of hybrid beta-galactosidase proteins. J. Biol. Chem. 258,1435-14358.
- 8. Jain, S., Kaushal D., DasGupta S.K., Tyagi ,A.K.,1997. Construction of shuttle vectors for genetic manipulation and molecular analysis of mycobacteria. Gene:190, 37-44.
- 9. Kenney, T.J., and Churchward, G., 1996. Genetic analysis of the *Mycobacterium smegmatis* rpsL promoter.J. Bacteriol. 178, 3564-3571.
- 10. Levin, M.E., Hatfull, G.F., 1993. Mol Microbiol. 2 277-285.
- 11. Mycobacterium smegmatis RNA polymerase: DNA supercoiling, action of rifampicin and mechanism of rifampicin resistance.
- 12. Miller, J.H., 1972. Experiments in Molecular Genetics. Cold Spring Harbor Press, Cold Spring harbor, NY, USA.
- 13. Mulder, M.A., Zappe, H., Steyn, L.M., 1997. Mycobacterial promoters.
- 14. Tubercle and Lung Disease.78, 211-223.
- 15. Ojha, A.K., Mukherjee, T.K., Chatterji, D., 2000. High intracellular level of guanosine tetraphosphate in *Mycobacterium smegmatis* changes the morphology of the bacterium.Infect Immun. 68, 4084-4091.
- 16. Ohja A.K., Verma .S, Chatterji D.(2002) Synthesis of an unusal polar glycopeptidolipid in glucose- limited culture of *Mycobacterium smegmatis*. Microbiology, 148, 3039-3048.

- 17. Parish, T., E. Mahenthiralingam, P.Draper, E.O.Davis, and M.J. Colston. (1997). Regulation of the inducible acetamidase gene of *M. smegmatis*. Microbiology 143:2267-2276.
- 18. Sambrook J et.al. 1989. Molecular Cloning: A laboratory manual. Cold Spring Harbor press, New York.
- 19. Stover, C.K., de la Cruz V.F., Fuerst T.R., Burlein J.E., Benson L.A., Bennett L.T., Bansal G.P., Young J.F., Lee M.H., Hatfull G.F., Snapper S. B., Barletta R.G., Jacobs Jr. W.R., Bloom B.R. 1991. New use of BCG for recombinabt vaccines. *Nature*, 351, 456-460.
- 20. Timm, J., Lim, E.M., and Gicquel, B., 1994a. *Escherichia coli* mycobacteria shuttle vectors for operon fusion and gene fusion to lacZ: the pJEM series. J. Bacteriol. 176,6749-6753.
- 21. Timm, J., Perilli, M.G., Duez, C., Trias, J., Orefici, G., Fattorini, L., Amicosante, G., Oratore, A., Joris, B., .Frere, A., Pugsley, P., and Gicquel, B., 1994b. Transcription and expression analysis, using lacZ and phoA gene fusions, of Mycobacterium fortuitum β-lactamase gene cloned from a natural isolate and a high level β-lactamase producer. Mol.Microbiol. 12,491-504.
- 22. Cashel, M., Gentry, D. R., Hernandez, V. J., and D. Vinella. 1996. The stringent response. In: Neidhardt, F. C., Curtiss, R., Ingraham, J. L., Lin, E. C. C., Low, K.B., Magasanik, B., Reznikoff, W. S., Riley, M., Schaechter, M., and H. E. Umbargar (Eds.), *Escherichia coli and Salmonella: Cellular and Molecular Biology*. ASM, Washington, D. C., Vol. II, pp-1458-1496.
- 23. Chakraburty, R., and M. Bibb. 1997. The ppGpp Synthetase gene (rel A) of *Streptomyces coelicolor* A3(2) plays a conditional role in antibiotic production and morphological differentiation. *J. Bacteriol*. 179, 5854-5861. Chatterji, D.,

- Fujita, N., and A. Ishihama. 1998. The mediator for stringent control, ppGpp, binds to the □-subunit of Escherichia coli RNA polymerase. *Genes to Cells*, 3, 279-287.
- 24. Fehr, S. and D. Richter. 1981. Stringent response of *Bacillus stearothermophilus*: Evidence for the existence of two distinct guanosine 3'-5'-polyphosphate synthetase. *J. Bacteriol.*, 145, 68-73.
- 25. Cassels, R., Oliva, B., and D. Knowles. 1995. Occurrence of regulatory nucleotides ppGpp and pppGpp following induction of the stringent response in staphylococci. *J. Bacteriol*. 177, 5161-5165.
- 26. Kramer, G. F., Baker, J. C., and B. N. Ames. 1988. New UV stress in *Salmonella typhimurium*: 4-thiouridine in t-RNA, ppGpp and pppGpp as components of an adaptive response. *J. Bacteriol.*, 170, 2344-2351.
- 27. Harris, B. Z., Kaiser, D., and M. Singer. 1998. The guanosine nucleotide (p) ppGpp initiates development and A-factor production in *Myxococcus xanthus*. *Genes. Dev.*, 12, 1022-35.
- 28. Mechold, U., Cashel, M. Steiner, K., Gentry, D., and H. Malke. 1996. Functional analysis of a rel A/spoT gene homologue from *Streptococcus equisimilus*. *J. Bacteriol*. 178, 1401-1411.
- 29. Nystrome, T. and S. Kjelleberg. 1989. Role of protein synthesis in the cell division and starvation induced resistance to autolysis of marine vibrio during the initial phase of starvation. *J. Gen. Microbiol.*, 135, 1599-1606.
- 30. Matin, A. 1991. The molecular basis of Carbon-starved induced general resistance in *E. coli*. *Mol. Microbiol.*, 5, 3-10.

- 31. Ochi, K., Kandala, T., and E. Freese. 1982. Evidence that *Bacillus subtilis* sporulation induced by stringent response is caused by decrease in GTP or GDP. *J. Bacteriol.* 151, 1062-1065.
- 32. Spector, M. P., Park, Y. K., Tirgari, S., Gonzalez, T. and, J. W. Foster. 1988. Identification and Characterisation of starvation regulated genetic loci in *Salmonella typhimurium* by using Muddirected lacZ operon fusion. *J. Bacteriol.* 170, 345-351.
- 33. U.S patent No. 6,355,464. Healy et al. (2002). M.tuberculosis RNA polymerase alpha subunit.